

## STATUS OF THE CLAIMS

Claims 4, 6, 11 and 13 (amended) are pending in the application.

Claims 4, 6 and 11 were objected to because the application lacked a readable CRF.

Claim 11 was rejected under 35 USC§102 as being anticipated by Mets.

## REMARKS

### Summary of the Invention

The enzyme, iron hydrogenase (HydA), has industrial applications for the production of hydrogen, specifically, for catalyzing the reversible reduction of protons to molecular hydrogen. The present invention relates to the isolation of a nucleic acid sequence from the algae *Scenedesmus obliquus*, *Chlamydomonas reinhardtii*, and *Chlorella fusca* that encodes iron hydrogenase. The invention further discloses the genomic nucleic acid, c-DNA and the protein sequences for HydA. The genes and gene products may be used in a photosynthetic process for hydrogen production which includes growing a microorganism containing the gene coding for HydA in a culture medium under illuminated conditions sufficient to accumulate an endogenous substrate; depleting a nutrient selected from the group consisting of sulfur, iron, and manganese from the medium; then allowing the culture to become anaerobic by consumption of an endogenous or exogenous substrate in the light.

### The Rejection Under 35USC§102

Claim 11 was rejected under 35USC§102 as being anticipated by Mets. Briefly, L. J. Mets submitted (to GenBank) a nucleotide sequence for DNA encoding a hydrogenase that is identical to SEQ ID NO: 5 of the present application. Applicant submits a Declaration under 37 CFR 1.131 swearing a date of invention that predates the date of Mets. To summarize the issues discussed in the enclosed Rule 131 Declaration/Affidavit, the Mets submission to GenBank was made on July 24, 2000 and entered under Accession Number AF289201. A copy of the Mets submission showing the submission date is enclosed herewith. The present inventor was the first to submit SEQ ID NO. 5 to GenBank. In fact, the sequence of the present invention, designated SEQ ID NO. 5, was submitted to GenBank by the present inventor on October 15, 1998, under Accession No. AJ012098. At the present inventor's request, the sequence data (SEQ ID NO. 5) was kept confidential by the EMBL until November 12, 2001.

The present application claims the priority of an earlier provisional application Serial No. 60/269,872, filed 2/16/01. The present inventor's submission to GenBank preceded the submission of Mets by nearly 2 years (21 months). The provisional application was filed prior to the public disclosure of SEQ ID NO. 5 by GenBank. GenBank has no mechanism for preventing submission of duplicate, redundant or even copied sequences. Accordingly, inasmuch as the present inventor's submission date predates the Mets submission by 21 months, the present inventor is the first inventor of SEQ ID NO. 5. In view of the foregoing facts and the enclosed sworn statement of the applicant and inventor, it is respectfully requested that this grounds for rejection be withdrawn.

### The Objection to the Claims

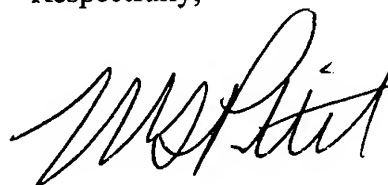
The claims of the application were again objected to because they refer to a sequence identifier but that the application lacks a readable CFR. Applicant notes that the sequence data was originally submitted on a floppy disc when the application was filed. The formatting requirements for submitting sequence data were changed and a new CRF was submitted. The sequence data has yet again been reformatted in accordance with the latest requirements of the USPTO (using PatentIn 3.2), and a new CRF comprising SEQ ID NO'S. 1-9 encoded on a compact disc is enclosed herewith. In particular, in the mRNA sequences set forth in SEQ. 7-9, the thymidine residues (t) were replaced with uracil (u). The nine sequences were also filed electronically in the USPTO on June 3, 2004 (EFS ID: 62009), and approved by the USPTO. Applicant respectfully submits that the sequence data on the enclosed CRF is computer readable and overcomes the objection, and an indication to this effect is respectfully requested.

### Possible Rejoinder

The Examiner notes in the last Office Action that in the event that claims 4,6 and 11 are found to be allowable, claims 13 and 14 (previously canceled) would be rejoined inasmuch as they claim a process for making and using a patentable product. In the event that claims 4,6 and 11 are allowable in view of the present Amendment B, Applicant requests that claim 13(amended) be rejoined and fully examined for patentability under 37 CFR 1.104.

Entry of this amendment, reconsideration, favorable action and early allowance and publication of this application are respectfully requested. If there are any minor matters remaining, it is respectfully requested that the examiner contact the undersigned by phone so that possible minor changes may be discussed in order to expedite the prosecution of this case.

Respectfully,



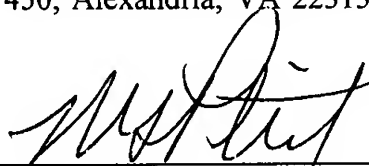
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Date: June 11, 2004

by:



Michael G. Petit